

WHAT IS CLAIMED IS:

1. A method of manufacturing an Al-Mg-Si series alloy plate excellent in thermal conductivity and strength, the
5 method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less and the balance being aluminum and inevitable impurities;

10 homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

15 subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to
20 440 °C, cooling rate during said one of plural passes is 50 °C /min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 10 mm or more but not larger than 15 mm,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

2. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein Si content of said Al-Mg-Si series alloy ingot is from 0.32 to 0.60 wt%.

3. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein Mg content of said Al-Mg-Si series alloy ingot is from 0.35 to 0.55 wt%.

4. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C.

5. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said plate thickness immediately after said one of plural passes is 12 mm or less.

6. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C , and wherein said plate thickness immediately after said one of plural passes is 12 mm or less.

7. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said rolling reduction of said cold rolling is 50% or more.

8. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C , and wherein said rolling reduction of said cold rolling is 50% or more.

9. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said plate thickness immediately after said one of plural passes is 12 mm or less, and wherein said rolling reduction of said cold rolling is 50% or more.

10. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 1, wherein said material temperature

immediately before said one of plural passes is from 380 to 420 °C, wherein said plate thickness immediately after said one of said plural passes is 12 mm or less, and wherein said rolling reduction of said cold rolling is 50% or more.

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11. A method of manufacturing an Al-Mg-Si series alloy plate excellent in thermal conductivity and strength, the method comprising the steps of:

10 preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less, Zn: 0.5 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

15 subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

20 wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C/min or more, material temperature immediately after said one

of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 15 mm or less,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

5 wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

12. The method of manufacturing an Al-Mg-Si series alloy
10 plate as recited in claim 11, wherein Si content of said Al-Mg-Si series alloy ingot is from 0.32 to 0.60 wt%.

13. The method of manufacturing an Al-Mg-Si series alloy
15 plate as recited in claim 11, wherein Mg content of said Al-Mg-Si series alloy ingot is from 0.35 to 0.55 wt%.

14. The method of manufacturing an Al-Mg-Si series alloy
20 plate as recited in claim 11, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C.

15. The method of manufacturing an Al-Mg-Si series alloy
plate as recited in claim 11, wherein said plate thickness immediately after said one of plural passes is 12 mm or less.

16. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 11, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C , and wherein said plate thickness immediately after said one of plural passes is 12 mm or less.

17. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 11, wherein said rolling reduction of said cold rolling is 50% or more.

18. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 11, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C , and wherein said rolling reduction of said cold rolling is 50% or more.

19. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 11, wherein said plate thickness immediately after said one of plural passes is 12 mm or less, and wherein said rolling reduction of said cold rolling is 50% or more.

20. The method of manufacturing an Al-Mg-Si series alloy plate as recited in claim 11, wherein said material temperature immediately before said one of plural passes is from 380 to 420 °C, wherein said plate thickness immediately after said one of said plural passes is 12 mm or less, and wherein said rolling reduction of said cold rolling is 50% or more.

21. An Al-Mg-Si series alloy plate excellent in thermal conductivity and strength manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature

immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C /min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 10 mm or more but not larger than 15 mm,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

22. The Al-Mg-Si series alloy plate as recited in claim 21, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a heat dissipation member, an electrically conductive member, a casing member, a light reflecting member or its supporting member.

23. The Al-Mg-Si series alloy plate as recited in claim 22, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a plasma display rear surface chassis member, a plasma display box member and a plasma display exterior member.

24. The Al-Mg-Si series alloy plate as recited in claim 22, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a liquid crystal display rear chassis member, a liquid crystal display bezel member, a liquid crystal display reflecting sheet member, a liquid crystal display reflecting sheet supporting member and a liquid crystal display box material.

25. An Al-Mg-Si series alloy plate excellent in thermal conductivity and strength manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less, Zn: 0.5 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature

immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C /min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 15 mm or less,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

26. The Al-Mg-Si series alloy plate as recited in claim 25, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a heat dissipation member, an electrically conductive member, a casing member, a light reflecting member or its supporting member.

27. The Al-Mg-Si series alloy plate as recited in claim 26, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a plasma display rear surface chassis member, a plasma display box member and a plasma display exterior member.

28. The Al-Mg-Si series alloy plate as recited in claim 26, wherein said Al-Mg-Si series alloy plate is a member selected from the group consisting of a liquid crystal display rear chassis member, a liquid crystal display bezel member, a liquid crystal display reflecting sheet member, a liquid crystal display reflecting sheet supporting member and a liquid crystal display box material.

29. A plasma display comprising a rear chassis member, a box member and an exterior member, wherein at least one of said rear chassis member, said box member and said exterior member is constituted by an Al-Mg-Si series alloy plate manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C /min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 10 mm or more but not larger than 15 mm,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

30. A liquid crystal display comprising a rear chassis member, a bezel member, a reflecting sheet member, a reflecting plate member, a reflecting plate supporting member and a box member, wherein at least one of said rear chassis member, said bezel member, said reflecting sheet member, said reflecting plate member, said reflecting plate supporting member and said box member is constituted by an Al-Mg-Si series alloy plate manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less and the balance being aluminum and inevitable impurities;

5 homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

10 subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C/min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is 10 mm or more but not larger than 15 mm,

20 wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

31. A plasma display comprising a rear chassis member, a box member and an exterior member, wherein at least one of said rear chassis member, said box member and said exterior member is constituted by an Al-Mg-Si series alloy plate manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5 wt% or less, Cu: 0.20 wt% or less, Zn: 0.5 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C/min or more, material temperature immediately after said one of plural passes is from 250 to 340 °C and plate thickness

immediately after said one of plural passes is not larger than 15 mm,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

5 wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.

32. A liquid crystal display comprising a rear chassis
10 member, a bezel member, a reflecting sheet member, a reflecting plate member, a reflecting plate supporting member and a box member, wherein at least one of said rear chassis member, said bezel member, said reflecting sheet member, said reflecting plate member, said reflecting plate supporting
15 member and said box member is constituted by an Al-Mg-Si series alloy plate manufactured by a method, the method comprising the steps of:

preparing Al-Mg-Si series alloy ingot consisting essentially of Si: 0.2 to 0.8 wt%, Mg: 0.3 to 0.9 wt%, Fe: 0.5
20 wt% or less, Cu: 0.20 wt% or less, Zn: 0.5 wt% or less and the balance being aluminum and inevitable impurities;

homogenizing said alloy ingot;

subjecting said alloy ingot to rough hot rolling to obtain a roughly hot rolled plate;

subjecting said roughly hot rolled plate to finish hot rolling to obtain a finished hot rolled plate; and

subjecting said finished hot rolled plate to cold rolling,

5 wherein one of plural passes performed at said rough hot rolling is controlled such that material temperature immediately before said one of plural passes is from 350 to 440 °C, cooling rate during said one of plural passes is 50 °C /min or more, material temperature immediately after said one
10 of plural passes is from 250 to 340 °C and plate thickness immediately after said one of plural passes is not larger than 15 mm,

wherein said cold rolling is controlled such that rolling reduction is 30% or more, and

15 wherein said cold rolled plate is subjected to final aging at a temperature of 180 °C or below, or is not subjected to final aging.